

Subject: PhD position on tree-herbivore interactions at Bordeaux (France)

We are seeking a highly motivated student with a strong background in biodiversity research to cover a three-year PhD position from January 2017 within the frame of the EU BiodivERsA project “Unraveling the potential of spontaneous forest establishment for improving ecosystem functions and services in dynamic landscapes (SPONFOREST)”. This research project investigates ecological processes involved in the recolonization of abandoned agricultural landscapes by woody vegetation. Within this greater context, the PhD thesis will focus on the question how the establishment history and resulting genetic and phenotypic diversity of new forest patches influence the assembly of associated communities of herbivorous insects. The study will take place in the Landes de Gascogne (SW France) where Pedunculate oak (*Quercus robur*) is vigorously expanding across a landscape dominated by pine plantation forests.

The student will exhaustively sample oak trees from selected forest patches, genotype them with Single Nucleotide Polymorphism (SNP) markers and phenotype them for leaf physical and chemical traits known to be involved in plant-herbivore interactions. (S)he will conduct observational and experimental work to describe insect herbivore communities and to quantify the associated damage. This information will be combined to unravel the direct and indirect links between oak genotypes, leaf traits, the composition of herbivore communities and resulting damages. Three hypotheses will be tested: (1) the diversity of insect herbivores and the damage they cause increase with the genetic diversity of forest patches; (2) within patches, individual trees suffer more damage when surrounded by closely related neighbours; and (3) the effect of oak genetic diversity on insect herbivores and associated damage is stronger in small, isolated patches.

The PhD student will be hosted at the Mixed Research Unit BIOGECO, a joint centre of INRA and Bordeaux University dedicated primarily to forest and biodiversity research (<http://www6.bordeaux-aquitaine.inra.fr/biogeco/Recherche>). The thesis will be co-supervised by Drs. Arndt Hampe (<https://scholar.google.com/citations?user=WFzkF44AAAAJ&hl=en>) and Bastien Castagneyrol (<https://scholar.google.fr/citations?user=nNQSvU8AAAAJ&hl=fr>). The student will acquire a strong expertise in SNP genotyping, entomology and plant-herbivore interactions. We are looking for a candidate with previous knowledge in some of these research fields and the willingness to develop her/his skills in the other aspects of the thesis. Moreover, the candidate should be proficient in English and know French well enough to follow the compulsory graduate student program at Bordeaux University (<https://ed-environnements.u-bordeaux.fr/doctorat>).

Interested applicants should send inquiries as soon as possible to arndt.hampe@inra.fr Please include a brief (1-page) statement about your research background and interests, along with your CV and two contacts for references.